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tories whereas Leffingwell goes into an entirely new field and shows the operation of the Taylor System in offices. There is only one other good book dealing with office management, consequently there is a real need for volumes such as Leffingwell has given us.

His work adds nothing new to the principles of management. He takes the Taylor System with its standardization, time and motion study, tasks and bonus schemes, and employment management, and applies it to office work.

As a whole, the book is suggestive; it gives a large number of hints to office managers that ought to prove valuable. It is well illustrated by photographs, but the charts fall into the error that is typical of all Shaw publications; namely, the originals are drawn on such a large scale that when reduced in reproduction the printing is well nigh undecipherable.

M. K.

STATISTICS

SECRIST, HORACE. *An Introduction to Statistical Methods*. Pp. xxi, 482. Price, \$2.00. New York: The Macmillan Company, 1917.

BAILEY, WM. B. and CUMMINGS, JOHN. *Statistics*. Pp. 153. Price, 60 cents. Chicago: A. C. McClurg and Company, 1917.

These two volumes, covering virtually the same field but written with entirely different purposes, must be judged by different standards. Professor Secrist has aimed to present a comprehensive but not too technical text primarily for the use of college students and business men, while Professors Bailey and Cummings have tried to produce a suggestive manual principally for social workers. The former must not be expected to sacrifice explicitness and detail for facile reading nor the latter to abandon emphasis of prominent principles for minute and technical description.

Secrist's volume may be roughly divided into three parts, dealing respectively with the uses and collection of statistics, their presentation and some mathematical devices for statistical study. The second and third portions are superior in treatment to the first, the author seemingly experiencing the usual difficulty in securing a satisfactory method of dealing with the subject of collection. It is submitted that no presentation which divorces principles and illustrations will ever be satisfactory, difficult as it may be to combine the two without obscuring the main ideas. Nevertheless even this section of the book is superior to other descriptions of the process and its principles. The space available in the Bailey and Cummings' book precludes any adequate treatment of this phase of the subject. On the other hand, this latter volume contains an important chapter on Ratios which points out many common errors in the use of statistics, especially vital and sociological. The suggestive criticisms contained therein must ordinarily be gathered by the laborious study of general principles, which often means that they are unnoticed or disregarded.

Secrist's book is especially to be commended in two respects; its emphasis on the application of statistical principles to business uses, a field in which a text has been urgently needed and the stress laid upon *purpose* as a predominant influence in collection, tabulation, averaging and graphic representation. The

chapters on statistical units, averages and graphs are especially noteworthy in these respects, although minor criticisms may be made in individual instances. Thus the chapter on units might have somewhat considered the classification by Watkins as well as the author's classification as to collection and presentation; some paragraphs such as the last on page 223 are not readily comprehensible by the student; and it is difficult to see why the author commends the diagram on page 174 which is certainly not notable for facility of interpretation or adherence to certain principles elsewhere stated.

Considerable space might be used in extolling the advantages of Secrist's volume as a text, in which respect it is clearly superior to any now extant especially from the standpoint of commercial education. The chapters on tabulation, graphs, averages and index numbers are excellent, and the somewhat unusual method of treating graphic presentation in advance of averages appears to be an improvement upon custom. The description of graphics seems to suffer little by preceding the subject of averages, while the best explanation of averages without pictorial aid is usually deficient. Bailey and Cummings follow in this the usual procedure, but since diagrams are not frequent in their book this is of little consequence. Professor Secrist might, however, with some advantage have incorporated as an introduction to his chapters on graphs Professor Bailey's classification of diagrams, which has long been regarded as very satisfactory for teaching purposes. The former's discussion of index numbers is, as he frankly admits, largely based on Professor Mitchell's admirable study for the Bureau of Labor Statistics. Except in tabular and graphic illustration Secrist's chapters on dispersion, skewness and correlation appear little superior to Professor King's text. The author gains considerably, however, here as well as elsewhere, by liberality in illustrative material.

The portion of Bailey and Cummings' book dealing with averages is necessarily deficient by reason of limited space but it is useless to criticize a treatment which is thus arbitrarily limited. Little complaint can be made of the apportionment of the space among the various subjects but Chapters I and II appear unnecessarily restricted. The chapter on graphs is a version of Professor Bailey's earlier classification in *Modern Social Conditions* and necessarily suffers, as must any treatment, from lack of illustration. The chapter on correlation is brief but suggestive.

In conclusion it may be said that these volumes fulfil admirably the purposes intended. Secrist's book is at present undoubtedly the best available text, strong in the emphasis of the purpose of statistics, ample illustrative material and the application of statistical principles to business uses. Bailey and Cummings have written a suggestive manual and brief introduction to the subject particularly for those interested in social and vital studies, valuable because of simplicity and brevity.

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